

What is claimed is:

1. A flexible distribution device used in a base station for rake receivers distribution to receive a transmitted signal emitting from a mobile device, comprising:

5 a master processing unit for assigning an appropriate number of rake receivers for receiving said transmitted signals; and

a plurality of processing units connected with said master processing unit, each processing unit comprising:

10 a plurality of rake receivers for receiving said transmitted signal and outputting a recovered signal through a recovery process; and

a detecting unit for receiving said transmitted signal and outputting a detection signal;

15 wherein said master processing estimates said appropriate number according to the qualities of said detection signals and integrates said recovered signals into a compound signal.

2. The device of claim 1, wherein said master processing unit further comprising:

a distributor for receiving said detection signals from said processing units, and estimating said appropriate number SAN;

20 a master combiner connected with said distributor and said plurality of processing units, the master combiner receiving said recovered signals of said rake receivers and combining said recovered signals into said compound signal.

25 3. The device of claim 2, wherein said plurality of processing units further comprising:

a first processor, comprising R1 rake receivers;

a second processor, comprising R2 rake receivers;

wherein, said rake receivers within said first processor and said second

processor are assigned selectively for said transmitted signal receiving by said distributor, and the method of assigning comprises:

when SAN is smaller than $R1$, the number of rake receivers within said first processor that equals to said SAN are employed;

- 5 when said SAN is larger than $R1$, but smaller than $(R1+R2)$, said $R1$ rake receivers within said first processor and $(SAN-R1)$ rake receivers within said second processor are employed;

when said SAN is larger than $(R1+R2)$, said distributor searches rake receivers located within other processing unit for assigning.

- 10 4. The device of claim 2, wherein said distributor selects a processing unit with high priority, said processing unit having better quality of its detection signal.

5. The device of claim 1, wherein said processing unit comprising:

- 15 a combiner connecting with said rake receivers, said combiner receiving said recovered signals and integrating recovered signals which originated from the same source, then outputting to said master processing unit.

6. The device of claim 1, wherein said detecting unit is a matched filter.

- 20 7. A flexible distribution method for rake receivers for distributing rake receivers to achieve an optimal usage of rake receivers within a base station, while utilizing said base station to receive a transmitted signal of a mobile station, and outputting a compound signal to a posterior circuit, the distribution architecture for rake receiver of said base station comprises a plurality of processing units, wherein each processing unit further comprises a plurality of rake receivers, and a master processing unit, said flexible
25 distribution method for rake receiver comprises the following steps:

A: receiving said transmitted signal by said base station;

B: estimating a signature acknowledge number (SAN) by said master processing unit according to the quality of said transmitted signal received by processing units;

- 30 C: determining whether the total number of rake receivers within every currently operable processing units is enough according to said signature

acknowledge number, if yes, then execute step E, if not, then execute step D;

D: adjusting the number of operating processing units according to said signature acknowledge number;

5 E: integrating said signals received by said operating rake receivers with said master processing unit and outputting said compound signal to said posterior circuit and repeating from step A.

8. The method of claim 7, wherein said SAN is related to quality of transmitted signals which received by said processing units.

9. The method of claim 7, wherein said step B further comprising:

10 B1: Evaluating quality of said transmitted signal received by every processing unit;

B2: Arranging a sequence for selecting processing units according to quality of said transmitted signal received.

10. The method of claim 9, wherein said step D further comprising:

15 D1: Determining a first parameter as the number of rake receivers that provided by the first processing unit in said sequence,

D2: Checking whether the SAN is larger than said first parameter or not; if yes, then execute D3, otherwise execute D4;

20 D3: Selecting another processing unit according to said sequence, and add an second parameter with the number of rake receivers which can be provided by thereof; following by the execution of D2;

25 D4: Among said processing units selected, only the last processing unit in the selective sequence employs the difference between the SAN and the master parameter as the number of rake receivers it provided, the other processing units being selected provides all the rake receivers that it can provide.